

Cell Processes and Energy

The Two Stages of Photosynthesis

(pages 46–48)

Key Concept: During photosynthesis, plants and some other organisms use energy from the sun to convert carbon dioxide and water into oxygen and sugars.

- In the first stage, or part, of photosynthesis, plants take in the energy in sunlight. Remember, plant cells have special organelles called chloroplasts. Chloroplasts absorb the energy in sunlight.
- In the second stage of photosynthesis, plant cells use the captured energy to make food. To do this, plant cells need water and carbon dioxide.
- Plants get water by absorbing it from the soil with their roots. Carbon dioxide gas enters the leaves through small openings on the leaves.
- Inside the chloroplasts, water and carbon dioxide go through a series of chemical reactions. The energy captured from the sun powers these reactions.
- One product of these chemical reactions is sugar. Plant cells use the energy from some of this sugar to carry out cell activities. Some of this sugar is changed to carbohydrates that make up plant structures. Any unused sugar is stored in the plant for later use.
- The other product of photosynthesis is oxygen. Oxygen goes out of the leaf through the same small openings that carbon dioxide entered the leaf.

Answer the following questions. Use your textbook and the ideas above.

3. Is the following sentence true or false? In the first stage of photosynthesis, plant cells make sugar. _____